15. DATA SHEETS

SUMMARY OF HYDRAULIC BRAKE HOSE TESTING RESULTS

GRP NO.: __ ; NOM. HOSE ID: ___"; VEH MFR: _____; PART NO.: _____

HOSE ASSY. MFR.: _____ PART NO.: _____

HOSE STOCK MFR.: _____

TYPE OF HOSE ASSYS.: _____-Veh. Specific*; _____-Aftermarket

* These types of assemblies are NOT SUBJECT to Label Inspection PASS/FAIL criteria.

SUMMARY: (INDICATE P - PASS, F - FAIL, N/A - NOT APPLICABLE)

		HOSE NUMBER																			
Test No.	**TEST**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**.**	**.**	**.**	**21**	**Spare**
1	LABEL INSPECTION																				
2	CONSTRIC. TEST																				
3	EXPANSION TEST																				
4	BURST TEST																				
5	WHIP TEST																				
6	TENSILE TEST																				
7	COLD BOX TEST																				
8	SALTSPRAY TEST																				
9	END FITTING CORROSION																				
9	OZONE TEST																				
10	WATER ABSORP.																				
11	BRK.FLUID COMPAT.																				
12	HIGH TEMP. IMPULSE																				
13	DYNAMIC OZONE																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Spare

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-1A

HYDRAULIC BRAKE HOSE LABELING INSPECTION - HOSE

GROUP NO.: _____ TEST DATE: _____

TYPE OF HOSE ASSYS.: ___-Veh. Specific; ___-Aftermarket

MARKINGS ON HOSE: DOT LINE- _____
OTHER LINE-

TORQUE STRIPES* (2) ON HOSE: ___-Yes; ___-No
*Required on AFTERMARKET ASSYS only

PASS	FAIL	N/A

DATE CODE ON HOSES			
HOSE NO.	**DATE CODE**	**HOSE NO.**	**DATE CODE**
1		11	
2		12	
3		13	
4		14	
5		15	
6		.	
7		.	
8		.	
9		21	
10		Spare	

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-1B

HYDRAULIC BRAKE HOSE LABELING INSPECTION - ASSEMBLY

GROUP NO.: _____ TEST DATE: _____

TYPE HOSE ASSYS.: ___-Veh. Specific; ___-Aftermarket

MARKINGS ON BAND*:
_____
(Metal Band unless otherwise noted)
If band is NOT present, check Data Sheet H-1C Option Selection for PASS/FAIL judgement for AFTERMARKET ASSEMBLIES

PASS	FAIL	N/A

* If marking on any hose assembly band is different than recorded above, copy the marking and identify by hose number in the space below.

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-1C

HYDRAULIC BRAKE HOSE LABELING INSPECTION - END FITTINGS

GROUP NO.: _____ TEST DATE: _____

TYPE OF HOSE ASSYS.: _____-Vehicle Specific; _____-Aftermarket
TYPE OF END FITTING: _____-Permanent; _____-Crimp/Swag; _____-Sleeve/Ferrule
MARKINGS ON END FITTINGS*: (Each hose assy end must be marked with an "A" or "B" by lab)
* If Band is NOT present, one fitting on Aftermarket Assys must have manufacturer's identification

HOSE NO.	"A" END _____	"B" END _____	PASS, FAIL, N/A
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
.			
.			
.			
21			
SPARE			

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-2

HYDRAULIC BRAKE HOSE CONSTRICTION TEST

GROUP NO.: _____; TEST DATE: _____; HOSE NOMINAL I.D.: _____"

AMB. TEMP.: ___ºF; PLUG SIZE USED: _____" PLUG GAGE __ EXT. PLUG GAGE __ BALL GAGE __
Each end of the hose assembly must be marked with an "A" or "B" by the laboratory.
The constriction of the bore was measured at both ends using the size gage plug as shown above.

HOSE NO.	END	PASS	FAIL*	MAX. DRILL SIZE
1	A B	----------	----------	----------
2	A B	----------	----------	----------
3	A B	----------	----------	----------
4	A B	----------	----------	----------
5	A B	----------	----------	----------
6	A B	----------	----------	----------
7	A B	----------	----------	----------
8	A B	----------	----------	----------
9	A B	----------	----------	----------
10	A B	----------	----------	----------
11	A B	----------	----------	----------
12	A B	----------	----------	----------
13	A B	----------	----------	----------
14	A B	----------	----------	----------
15	A B	----------	----------	----------
16	A B	----------	----------	----------
.	A B	----------	----------	----------
.	A B	----------	----------	----------
21	A B	----------	----------	----------
SPARE	A B	----------	----------	----------

*Approximate location of obstruction ___in. from A__ B___

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-3

HYDRAULIC BRAKE HOSE EXPANSION TEST

GROUP NO.: _____ ; HOSE TYPE: _____ ; TEST DATE: _____

HOSE NOMINAL I.D.: _____"; EXPANSION AMBIENT TEMPERATURE: _____ºF

DO NOT MOVE THE HOSE BETWEEN THE THREE (3) EXPANSIONS

Expansion @ 1000 psig: (____ cc/ft allowed)		**HOSE #1**	**HOSE #2**	**HOSE #3**	**HOSE #4**
Hose Free Length (FL), INCHES	FL				
Hose Free Length (FL), FEET	FL				
Expansions @ 1000 psig	#1				
	#2				
	#3				
TOTAL OF THREE EXPANSIONS	T				
AVERAGE = TOTAL/3	A				
EXPANSION (ACTUAL/FL (feet)	E				
Expansion @ 1500 psig: (____ cc/ft allowed)		**HOSE #1**	**HOSE #2**	**HOSE #3**	**HOSE #4**
Expansions @ 1500 psig	#1				
	#2				
	#3				
TOTAL OF THREE EXPANSIONS	T				
AVERAGE = TOTAL/3	A				
EXPANSION (ACTUAL/FL (feet)	E				
Expansion @ 2900 psig: (____ cc/ft allowed)		**HOSE #1**	**HOSE #2**	**HOSE #3**	**HOSE #4**
Expansions @ 2900 psig	#1				
	#2				
	#3				
TOTAL OF THREE EXPANSIONS	T				
AVERAGE = TOTAL/3	A				
EXPANSION (ACTUAL/FL (feet)	E				
PASS					
FAIL					

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-4

HYDRAULIC BRAKE HOSE BURST STRENGTH TEST

GROUP NO.: _____ ; HOSE TYPE: _____ ; TEST DATE: _____

AMBIENT TEMPERATURE: _____ ºF

HOSE NUMBER	ACTUAL PRESSURE ATTAINED, psig	PASS	FAIL
1			
2			
3			
4			
16			
19			

REMARKS:

I.D.	MINIMUM ALLOWABLE BURST STRENGTH
larger than 1/8 inch or 3 mm	5,000 psi
1/8 inch, 3 mm, or smaller	7,000 psi

RECORDED BY: _____ DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-5
HYDRAULIC BRAKE HOSE WHIP TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

	TIME	**DATE**
START OF TEST		
END OF TEST		
TOTAL ELAPSED TEST TIME (hours) =		

The free length of each specimen was measured to within a tolerance of 0.015" between the end fittings while hanging in a straight position.

Water pressure of 220 to 235 psig was applied, and the hose and passages bled to eliminate air pockets or bubbles. The machine speed was 780 to 800 rpm, and total whip running time was a minimum of 40 hours. See TP Table 2 for "Slack" requirements.

Inspect condition of the hoses after 35 hours and 40 hours of whip test running time. PASS/FAIL shall be based upon the condition at the 35 hour inspection.

Inspect condition of the hoses after 35 hours and 40 hours of whip test running time. PASS/FAIL shall be based upon the condition at the 35 hour inspection. **NOTE: Measurements in thousands of an inch.**		**HOSE #5**	**HOSE #6**	**HOSE #7**	**HOSE #8**
Hose Free Length	FL				
Slack Setting	SS				
Machine Setup Length (FL - SS)	MSL				
Line Pressure (220 to 235 psig)	LP				
Whip Test Running Time, hours (Minimum = 40 hours)	ET				

HOSE CONDITION AT 35 HOURS AND AT 40 HOURS

HOSE NO.	**AT 35 HOURS**	**AT 40 HOURS**	**DETERMINED @ 35 HRS**	
			PASS	**FAIL**
5				
6				
7				
8				

RECORDED BY: _____ ; DATE:
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-6

HYDRAULIC BRAKE HOSE TENSILE TEST

GROUP NO._____; TEST DATE: _____ ; AMBIENT TEMP.: _____ ºF

The hose assemblies were mounted in the tensile machine so that the hose and end fittings had a straight centerline corresponding to the direction of the machine pull.

The hose assembly was pulled at a rate of 1 inch/minute until failing as follows:

A. Hose pulled out of the end fitting
B. Hose ruptured

TABLE H6-1 - Slow Pull Test (1" per minute)

HOSE NO.	ACTUAL TOTAL LOAD AT TIME OF FAILURE (lbs)	TYPE OF FAILURE "A" or "B"	MIN. ALLOW. TENSILE STRENGTH (lbs)	PASS	FAIL
9A			325		
10A			325		
11A			325		
12A			325		

TABLE H6-1 - Fast Pull Test (2" per minute)

HOSE NO.	ACTUAL TOTAL LOAD AT TIME OF FAILURE (lbs)	TYPE OF FAILURE "A" or "B"	MIN. ALLOW. TENSILE STRENGTH (lbs)	PASS	FAIL
9B			370		
10B			370		
11B			370		
12B			370		

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-7

HYDRAULIC BRAKE HOSE LOW TEMPERATURE RESISTANCE TEST

GROUP NO.: _____ ; HOSE DIAMETER: _____ inches

The hose assembly was conditioned in the cold box in a straight position or natural position at -40ºF to -54ºF for 70 hours.

After the conditioning period and while still at this temperature, the hose assembly was bent around a wood mandrel of the diameter noted in the "REMARKS" section.

All cracks and breaks are noted below.

HOSE #13	DATE	TIME	BOX TEMPERATURE (ºF)	EVIDENCE OF CRACKS OR BREAKS
IN BOX				
OUT BOX				
TOTAL EXPOSURE TIME =				

TEST RESULTS:

PASS	FAIL

Wood Mandrel diameter used = _____ inches

HOSE NOMINAL I.D.	TEST CYLINDER DIAMETER(+ 0.03, - 0)
LESS THAN 1/8"	2.50"
1/8"	3.00"
3/16" AND 1/4"	3.50"
GREATER THAN 1/4"	4.00"

REMARKS:
External Inspection -
Internal Inspection -

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-8

HYDRAULIC BRAKE HOSE END FITTING CORROSION TEST

GROUP NO.: _____

The hose assembly was subjected to a Salt Spray test for 24 hours in accordance with the testing method of Salt Spray (Fog) Testing ASTM B117-03.

The temperature in the salt chamber and the air supply (psig) were continuously recorded.

HOSE #14	DATE	TIME	SALT SOLUTION PROP.		EVIDENCE OF RUST OR CORROSION
			Sp.Gr.@95±2ºF	Ph	
IN Cabinet					
OUT Cabinet					

TEST RESULTS:

PASS	FAIL

REMARKS: (Note all interruptions in test, cause, and length of time)

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-9

HYDRAULIC BRAKE HOSE OZONE RESISTANCE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

HOSE NO.: __15__ ; HOSE NOMINAL O.D.: _____ inches

CYLINDER DIAMETER = 8 x HOSE NOMINAL O.D. = _____ inches

	TIME	**DATE**
START OF TEST		
END OF TEST		
TOTAL EXPOSURE TIME (hours) =		

The brake hose was bound around a cylinder with a diameter of _____ inches and conditioned at room temperature for 24 hours.

The brake hose and cylinder were then exposed to an ozone concentration of 100 parts per 100 million by volume for 70 hours at a temperature of 104ºF.

Examination of the hose under 7-power magnification yielded the following results -

TEST RESULTS:

PASS	**FAIL**

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-10A

HYDRAULIC BRAKE HOSE WATER ABSORPTION - BURST TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

HOSE FREE LENGTH: _____ inches ; HOSE NOMINAL I.D.: _____ inches

	TIME	DATE
START OF IMMERSION TIME		
END OF IMMERSION TIME		
TOTAL IMMERSION TIME (hours) =		

The hose was prepared and immersed in distilled water at 185 F for 70 hours. Within 30 minutes after removal from the water, the Burst Strength Test was conducted in accordance with TP Paragraph 12.A.4.

HOSE NUMBER	ACTUAL PRESSURE ATTAINED, psig	PASS	FAIL
16			

I.D.	MINIMUM ALLOWABLE BURST STRENGTH
larger than 1/8 inch or 3 mm	5,000 psi
1/8 inch, 3 mm, or smaller	7,000 psi

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-10B

HYDRAULIC BRAKE HOSE WATER ABSORPTION - WHIP TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

HOSE FREE LENGTH: _____ inches ; HOSE NOMINAL I.D.: _____ inches

	TIME	**DATE**
START OF IMMERSION TIME		
END OF IMMERSION TIME		
TOTAL IMMERSION TIME (hours) =		

The hose was prepared and immersed in distilled water at room temperature for 70 hours. Within 30 minutes after removal from the water, the Whip (Fatigue) Test was started in accordance with TP Paragraph 12.A.5.

Ambient Temperature = _____ ºF.	**TIME**	**DATE**
START OF WHIP TEST		
END OF WHIP TEST		
TOTAL WHIP TEST TIME (hours) =		

NOTE: Measurements in thousands of an inch.		**HOSE #17**
Hose Free Length	FL	
Slack Setting	SS	
Machine Setup Length (FL - SS)	MSL	
Line Pressure (220 to 235 psig)	LP	
Whip Test Running Time, hours (Min. = 40 hrs)	ET	

HOSE CONDITION AT 35 HOURS AND AT 40 HOURS				
HOSE NO.	**AT 35 HOURS**	**AT 40 HOURS**	**DETERMINED @ 35 HRS**	
			PASS	**FAIL**
17				

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-10C

HYDRAULIC BRAKE HOSE WATER ABSORPTION - TENSILE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

HOSE FREE LENGTH: _____ inches ; HOSE NOMINAL I.D.: _____ inches

	TIME	DATE
START OF IMMERSION TIME		
END OF IMMERSION TIME		
TOTAL IMMERSION TIME (hours) =		

The hose was prepared and immersed in distilled water at room temperature for 70 hours. Within 30 minutes after removal from the water, the Tensile Strength Test was started in accordance with TP Paragraph 12.A.6.

The hose assemblies were mounted in the tensile machine so that the hose and end fittings had a straight centerline corresponding to the direction of the machine pull.

The hose assembly was pulled failure as follows:

A. Hose pulled out of the end fitting
B. Hose ruptured

TABLE H6-1 - Slow Pull Test (1" per minute)

HOSE NO.	ACTUAL TOTAL LOAD AT TIME OF FAILURE (lbs)	TYPE OF FAILURE "A" or "B"	MIN. ALLOW. TENSILE STRENGTH (lbs)	PASS	FAIL
18			325		

TABLE H6-1 - Fast Pull Test (2" per minute)

HOSE NO.	ACTUAL TOTAL LOAD AT TIME OF FAILURE (lbs)	TYPE OF FAILURE "A" or "B"	MIN. ALLOW. TENSILE STRENGTH (lbs)	PASS	FAIL
18			370		

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-11

HYDRAULIC BRAKE HOSE BRAKE FLUID COMPATIBILITY TEST

GROUP NO.: _____ ; HOSE NUMBER: _____

	TIME	DATE
START OF TEST TIME		
END OF TEST TIME		
TOTAL IMMERSION TIME (hours) =		

The hose was attached to a 1 pint reservoir of Compatibility fluid and placed vertically in an oven at 195 to 200ºF for 70 hours. After removal, the hose was cooled for 30 minutes.

Cool Period: Start Time - _____ End Time - _____

TOTAL Cool Time - _____

The Constriction Test was performed in accordance with the TP Paragraph 12.A.2.

HOSE NUMBER	END	PASS	FAIL
19	A		
	B		

The Burst Strength Test was performed in accordance with the TP Paragraph 12.A.4.

I.D.	MINIMUM ALLOWABLE BURST STRENGTH
larger than 1/8 inch or 3 mm	5,000 psi
1/8 inch, 3 mm, or smaller	,000 psi

HOSE NUMBER	ACTUAL PRESSURE ATTAINED, psig	PASS	FAIL
19			

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-12

HYDRAULIC BRAKE HOSE HIGH TEMPERATURE IMPULSE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

HOSE NO.: _____ ; HOSE NOMINAL O.D.: _____ inches

One end of hose assembly was connected to a pressure cycling machine. The other end of the hose assembly was plugged. The pressure cycling machine and hose assembly were filled with SAE RM-66-05 Compatibility Fluid.

The brake hose assembly was placed inside of a circulating air oven in a vertical position. With the oven temperature at 295 degrees F (146 degrees Celsius) the pressure inside the hose was cycled (from zero psi to 1600 psi and held constant for 1 minute, then the pressure is decreased from 1600 psi to zero psi and held constant for 1 minute) for 150 cycles.

	TIME	**DATE**
START OF 150 CYCLES		
END OF 150 CYCLES		
TOTAL CYCLE TIME (hours) =		

The brake hose was removed from the oven, disconnected from the pressure cycling machine, and allowed to cool at room temperature for 45 minutes.

The burst strength test was conducted (all sizes of hose tested at 5,000 psi).

HOSE NUMBER	**ACTUAL PRESSURE ATTAINED, psig**	**PASS**	**FAIL**

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-13

HYDRAULIC BRAKE HOSE DYNAMIC OZONE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

HOSE NO.: ____ ; HOSE NOMINAL O.D.: _____ inches

The brake hose was conditioned at room temperature for 24 hours, then cut and mounted on the test fixture (Par. 12.A.13, Figure 3).

The test fixture with the cut portion of the brake hose mounted on it were exposed to an ozone concentration of 100 parts per 100 million by volume for 48 hours at a temperature of 104ºF. The movable pin of the test fixture was cycled at 0.3 Hz for the full 48 hours of ozone exposure.

	TIME	**DATE**
START OF EXPOSURE		
END OF EXPOSURE		
TOTAL EXPOSURE TIME (hours) =		

Examination of the hose without magnification yielded the following results -

TEST RESULTS:

PASS	**FAIL**

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET H-14
HYDRAULIC BRAKE HOSE TRACER CORD COLOR IDENTIFICATION TEST

GROUP NO.: _____ ; TEST DATE: _____

After completion of all tests, remove a portion of the hose outer cover in all NONFAILING samples to determine the color of the tracer cord woven into the outre braid; tracer cord may be woven into inner braid on some hose assemblies.

SPECIMEN NO.	CORD COLOR	R.M.A. IDENTIFICATION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
SPARE		

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

SUMMARY OF AIR BRAKE HOSE TESTING RESULTS

GROUP NO.: _____ ; NOMINAL HOSE I.D.: _____ inches

VEHICLE MFR: _____; PART NO.: _____

HOSE ASSY MFR: _____; PART NO.: _____

HOSE STOCK MFR: _____

TYPE OF HOSE ASSYS.: _____-Veh. Specific*; _____-Aftermarket
* These types of assys are NOT subject to Label Inspection PASS/FAIL criteria.

TYPE OF END FITTING: ____-Permanent; ____-Reusable; ____-Renewable

SUMMARY: (P = PASSED, F = FAILED, N/A = NOT APPLICABLE)

		HOSE NUMBER													
TEST NAME		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	.	.	.	**15**
01	Label Inspection														
02	Constriction Test														
03	High Temperature Test														
04	Cold Box Test														
05	Oil Resistance Test														
06	Ozone Test														
07	Length Change Test														
08	Adhesion (Not Reinforced) Test														
09	Flex & Air Pressure Test														
10	Corrosion & Burst Test														
11	Tensile Test														
12	Water Absorption														
13	Zinc Chloride Test														
14	Salt Spray Test														
15	Adhesion (Reinforced) Test														
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**.**	**.**	**.**	**15**

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-1A

AIR BRAKE HOSE LABELING INSPECTION - HOSE

GROUP NO.: _____ ; TEST DATE: _____

TYPE ASSY: ____-Veh Specific*; ____-Aftermarket
* These types of assys are NOT subject to Label Inspection PASS/FAIL criteria.

MARKINGS ON HOSE: DOT Line-
_____
Other Line-

HOSE NUMBER	DATE CODE ON HOSE
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
.	
.	
.	
15	
SPARE	

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-1B

AIR BRAKE HOSE LABELING INSPECTION - ASSEMBLY

GROUP NO.: _____; AFTERMARKET ASSY: __-Yes/__-No; TEST DATE: _____

MARKINGS ON BAND:
(Metal band unless otherwise noted)

MARKING OPTION SELECTED: ____-Yes; ____-No
(If YES, see Data Sheet A-1C for PASS/FAIL judgment)

HOSE NO.	DOT MARK	MANUFACTURER'S MARK	PASS, FAIL or N/A
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-1C

AIR BRAKE HOSE LABELING INSPECTION - END FITTINGS

GROUP NO.: _____ ; TEST DATE: _____

TYPE OF END FITTINGS: ____-Permanent*; ____-Reusable; ____-Renewable
* NOT subject to Label Inspection PASS/FAIL criteria.

MARKINGS ON END FITTINGS:
(Each hose assy end must be marked with an "A" or "B" by the lab)

HOSE#	"A" END	"B" END	P,F,N*
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
SPARE			

- P = PASS, F = FAIL, N = NOT APPLICABLE

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-2

AIR BRAKE HOSE CONSTRICTION TEST

GROUP NO.: _____; TEST DATE: _____; HOSE NOMINAL I.D.: _____"

AMB.TEMP.: ___ºF; PLUG SIZE USED*: _____" (NOTE: _____" Max Dia. for _____" ID hose)
* See TP Paragraph 12.B.2 for proper plug size

Each end of the hose assembly must be marked with an "A" or "B" by the lab. The constriction of the bore was measured at both ends using the size gage plug as shown above.

HOSE NO.	END	PASS	FAIL	MAX. DRILL SIZE
1	A B	_____	_____	_____
2	A B	_____	_____	_____
3	A B	_____	_____	_____
4	A B	_____	_____	_____
5	A B	_____	_____	_____
6	A B	_____	_____	_____
7	A B	_____	_____	_____
8	A B	_____	_____	_____
9	A B	_____	_____	_____
10	A B	_____	_____	_____
11	A B	_____	_____	_____
12	A B	_____	_____	_____
13	A B	_____	_____	_____
14	A B	_____	_____	_____
15	A B	_____	_____	_____
SPARE	A B	_____	_____	_____

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-3

AIR BRAKE HOSE HIGH TEMPERATURE TEST

GROUP NO.: _____ ; HOSE NOMINAL I.D.: _____ inches

	TIME	DATE
START OF HIGH TEMPERATURE TEST		
END OF HIGH TEMPERATURE TEST		
TOTAL TEST TIME (hours) =		

Hose 1 was secured around a cylinder with a diameter of _____ inches and placed in an air oven for 70 hours at 212ºF. After removal and cooling, the hose was hand straightened and inspected.

TEST RESULTS:

PASS	FAIL

External Inspection - _____

Internal Inspection - _____

HOSE NOMINAL I.D. (mm)	TEST CYLINDER DIAMETER (mm)
3/16" (4,5)	1" (25)
1/4" (6)	1½" (38)
5/16" (8)	1¾" (45)
3/8" (-)	1¾" (45)
13/32" (10)	1 ⅞" (48)
7/16", 1/2" (12)	2" (51)
5/8"	2½" (64)

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-4

LOW TEMPERATURE RESISTANCE TEST

GROUP NO.: _____ ; HOSE NOMINAL I.D.: _____ inches

The hose assembly was conditioned in the cold box in a straight position or natural position at -40ºF for 70 hours.

After the conditioning period and while still at this temperature, the hose assembly was bent around a test cylinder.

All cracks and breaks are noted below.

HOSE #2	DATE	TIME	BOX TEMPERATURE (ºF)	EVIDENCE OF CRACKS OR BREAKS
IN BOX				
OUT BOX				
TOTAL EXPOSURE TIME =				

TEST RESULTS:

PASS	FAIL

Test cylinder diameter used = _____ inches

HOSE NOMINAL I.D. (mm)	TEST CYLINDER DIAMETER (mm)
3/16" (4,5)	1" (25)
1/4" (6)	1½" (38)
5/16" (8)	1¾" (45)
3/8" (-)	1¾" (45)
13/32" (10)	1 ⅞" (48)
7/16", 1/2" (12)	2" (51)
5/8"	2½" (64)

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-5
AIR BRAKE HOSE OIL RESISTANCE TEST

GROUP NO.: _____

Specimens were prepared from Hose Numbers 3, 4 and 5 in accordance with the TP Paragraph 12.B.5 and weighed to the nearest milligram in air (W_1) and in distilled water (W_2).

Each specimen was immersed in ASTM No. 3 oil for 70 hours at 207ºF to 212ºF and then cooled for 30 to 60 minutes. Specimens were each weighed in a tared weighing bottle (W_3) and in distilled water (W_4) within 5 minutes after removal from the cooling liquid.

The percent increase in volume was calculated as follows:

$$\text{Percent of Increase} = \frac{(W_3 - W_4) - (W_1 - W_2)}{(W_1 - W_2)} \times 100$$

	DATE	TIME	TEMPERATURE (ºF)
OVEN TEST START			
OVEN TEST END			
COOL PERIOD END			

	HOSE #3	HOSE #4	HOSE #5
Wt. in air (W_1) mg			
Wt. in water (W_2) mg			
Wt. in bottle (W_3) mg			
Wt. in water (W_4) mg			
Percent Increase			
PASS			
FAIL			

The average percent increase in volume = _____ %. (100% max.)

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-6

AIR BRAKE HOSE OZONE TEST - 70 HOURS

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

HOSE NO.: __6__ ; HOSE NOMINAL O.D.: _____ inches

CYLINDER DIAMETER = 8 x HOSE NOMINAL O.D. = _____ inches

	TIME	DATE
START OF TEST		
END OF TEST		
TOTAL EXPOSURE TIME (hours) =		

The brake hose was bound around a cylinder with a diameter of _____ inches and conditioned at room temperature for 24 hours.

The brake hose and cylinder were then exposed to an ozone concentration of 100 parts per 100 million by volume for 70 hours at a temperature of 104ºF.

Examination of the hose under 7 power magnification yielded the following results -

TEST RESULTS:

PASS	FAIL

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-7

AIR BRAKE HOSE LENGTH CHANGE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

TEST DATE: _____ ; HOSE NOMINAL I.D.: _____ inches

The hose was positioned in a straight horizontal position and pressurized to 10 psig, and the free length measured. Pressure was increased to 200 psig and the free length re-measured.

	@ 10 psig	@ 200 psig	PASS	FAIL
Hose Free Length (in.)				

The Free Length Change = _____ %. (-7%)

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-8

AIR BRAKE HOSE ADHESION TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE:_____ ºF

TEST DATE: _____ ; SAMPLE LENGTH: _____ inches

Hose #8 was prepared in accordance with the TP Paragraph 12.B.2 and installed in the Adhesion Test Device. The moving head travel was 1.0 inch per minute with a permanent recording of Tension vs. Displacement.

Minimum Force Recorded (lbs.)	Adhesion Value (lbs./in.)	Minimum Allowable (lbs./in.)	PASS	FAIL
		8		

Record data for all layers.

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-9

AIR BRAKE HOSE FLEX STRENGTH AND AIR PRESSURE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE:_____ ºF

TEST DATE: _____ ; HOSE NO.: ____9

The hose assembly was marked along the centerline.

HOSE FREE LENGTH.:

The hose assembly was subjected to a Salt Spray test for 24 hours in accordance with the testing method of Salt Spray (Fog) Testing ASTM B117-03.

The temperature in the salt chamber, air supply (psig), and were continuously recorded.

HOSE #14	DATE	TIME	SALT SOLUTION PROP.		EVIDENCE OF RUST OR CORROSION
			Sp.Gr.@95±2ºF	Ph	
IN Cabinet					
OUT Cabinet					

DATE/TIME END OF CORROSION TEST:
DATE/TIME START EXPOSURE TO 212F DATE/TIME END EXPOSURE TO 212F
DATE/TIME START FLEX TEST TO 212F

The hose was pressurized to 150 psig. After a 2 minute hold, the final pressure was recorded.

Initial Pressure (psig)	Final Pressure (psig)	Pressure Decay During 5 Min. Hold (psig)	PASS	FAIL

Free Hose Length	Nominal Hose Inside Diameter	Dimensions							
		Position "1"				Position "2"			
		A	B	C	R(1)	A	B	C	R(1)
10.00 (254)	3/16, 1/4	3.00 (76)	2.75 (70)	3.75 (95)	1.40 (34)	3.00 (76)	2.75 (70)	3.75 (95)	1.20 (30)
11.00 (279)	5/16, 3/8, 13/32	3.00 (76)	3.50 (89)	4.50 (114)	1.70 (43)	3.00 (76)	3.50 (89)	4.50 (114)	1.30 (33)
14.00 (355)	7/16, ½, 5/8	3.00 (76)	4.00 (102)	5.00 (127)	2.20 (56)	3.00 (76)	4.00 (102)	5.00 (102)	1.80 (46)

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-10

AIR BRAKE CORROSION RESISTANCE AND BURST STRENGTH TEST

GROUP NO.: _____ ; TEST DATE:

The hose assembly was subjected to a Salt Spray test for 24 hours in accordance with the testing method of Salt Spray (Fog) Testing ASTM B117-03.

The temperature in the salt chamber, air supply (psig), and were continuously recorded.

(Note all interruptions in test, cause, and length of time)

HOSE #14	DATE	TIME	SALT SOLUTION PROP.		EVIDENCE OF RUST OR CORROSION
			Sp.Gr.@95±2ºF	Ph	
IN Cabinet					
OUT Cabinet					

The hose was connected to the pressure source and completely filled with water.

After all air was eliminated in the hose, the relief valve was closed and pressure applied at the rate of 1,000 psi per minute until the specimen bursts.

HOSE NUMBER	ACTUAL PRESSURE ATTAINED, psig	MINIMUM ALLOWABLE BURST STRENGTH	PASS	FAIL
10		900 psig		

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-11

AIR BRAKE HOSE TENSILE TEST

GROUP NO.: _____ ; TEST DATE:

HOSE SIZE: _____ inches AMBIENT TEMP.: _____ ºF

VEHICLE APPLICATION: _____
(Relative motion unless otherwise noted)

The hose assembly was mounted in the tensile machine so that the hose and end fittings had a straight centerline corresponding to the direction of the machine pull.

The hose assembly was pulled at a rate of 1 inch per minute until failing as follows:

A. Hose pulled out of the end fitting
B. Hose ruptured

HOSE NO.	ACTUAL TOTAL LOAD AT TIME OF FAILURE (lbs)	TYPE OF FAILURE	MIN. ALLOWABLE TENSILE STRENGTH	PASS	FAIL
11					

Vehicle Application	ALLOWABLE TENSILE STRENGTH			
	I.D. ≤ ¼ "	I.D.> ¼ "	¼" <I.D. ≤ ½"	I.D.<½"
Between frame and axle	250 lbs	325 lbs	-	-
Other	50 lbs	-	150 lbs	325 lbs

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-12

AIR BRAKE HOSE WATER ABSORPTION - TENSILE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

HOSE FREE LENGTH: _____ inches ; HOSE NOMINAL I.D.: _____ inches

	TIME	DATE
START OF IMMERSION TIME		
END OF IMMERSION TIME		
TOTAL IMMERSION TIME (hours) =		

The hose was prepared and immersed in distilled water at room temperature for 70 hours. Within 30 minutes after removal from the water, the Tensile Strength Test was started in accordance with TP Paragraph 12.A.11.

HOSE NO.	ACTUAL TOTAL LOAD AT TIME OF FAILURE (lbs)	TYPE OF FAILURE (A or B)	MIN. ALLOWABLE TENSILE STRENGTH	PASS	FAIL
12					

FAILURE TYPES: A = Hose pulled out of end fitting
B = Hose ruptured

Vehicle Application	ALLOWABLE TENSILE STRENGTH			
	I.D. ≤ ¼ "	I.D.> ¼ "		
Between frame and axle	250 lbs	325 lbs	-	-

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-13

AIR BRAKE HOSE ZINC CHLORIDE RESISTANCE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

	TIME	DATE
START OF IMMERSION TIME		
END OF IMMERSION TIME		
TOTAL IMMERSION TIME (hours) =		

Hose #13 shall be immersed in a 50 percent zinc chloride aqueous solution at room temperature for 200 hours. After that time, the hose was removed from the solution and examined under 7-power magnification. Inspection of the hose yielded the following:

TEST RESULTS:

PASS	FAIL

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-14

AIR BRAKE HOSE SALT SPRAY TEST - 24 HOURS

GROUP NO.:

The hose assembly was subjected to a Salt Spray test for 24 hours in accordance with the testing method of Salt Spray (Fog) Testing ASTM B117-03.

The temperature in the salt chamber, air supply (psig), and were continuously recorded.

HOSE #14	DATE	TIME	SALT SOLUTION PROP.		EVIDENCE OF RUST OR CORROSION
			Sp.Gr.@95±2ºF	Ph	
IN Cabinet					
OUT Cabinet					

TEST RESULTS:

PASS	FAIL

REMARKS: (Note all interruptions in test, cause, and length of time)

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-15

AIR BRAKE HOSE ADHESION TEST (REINFORCED BY WIRE)

GROUP NO.: _____ ; AMBIENT TEMPERATURE:_____ ºF

TEST DATE: _____ ; BRAKE HOSE ID: _____ inches

Plug one end of the brake hose. Place a steel ball with a diameter equal to 73% of the nominal I.D. of the brake hose inside the hose.

STEEL BALL ID: _____

Attach the other end of the brake hose to a source of vacuum and subject the hose to 25 mm of Hg for 5 minutes. While applying vacuum, bend the hose around the test cylinder. At the location of the bend, bend the hose in the opposite direction.

TEST CYLINDER ID: _____

With the vacuum still applied return the hose to a straight position and attempt to roll the ball inside the hose from one end to the other end using gravity.

PASS CRITERION: The ball should roll from one each end of the brake hose to the other

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET A-16

AIR BRAKE HOSE TRACER CORD COLOR IDENTIFICATION TEST

GROUP NO.: _____ ; TEST DATE:

After completion of all tests, remove a portion of the hose outer cover in all NONFAILING samples to determine the color of the tracer cord woven into the outer braid; tracer cord may be woven into inner braid on some hose assemblies.

SPECIMEN NO.	CORD COLOR	R.M.A. IDENTIFICATION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

SUMMARY OF VACUUM BRAKE HOSE TESTING RESULTS

GROUP NO.: _____ ; NOMINAL HOSE I.D.: _____ inches

VEHICLE MFR: _____ ; PART NO.: _____

HOSE ASSY MFR: _____ ; PART NO.: _____

HOSE STOCK MFR.: _____

TYPE OF HOSE ASSYS.: _____-Veh. Specific*; _____-Aftermarket
* NOT subject to Label Inspection PASS/FAIL criteria.

TYPE OF END FITTING: ____-Permanent; ____-Reusable; ____-Renewable

SUMMARY: (P = PASSED, F = FAILED, N/A = NOT APPLICABLE)

		HOSE NUMBER									
TEST NAME		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
01	Label Inspection										
02	Constriction Test										
03	High Temperature Test										
04	Cold Box Test										
05	Ozone Test										
06	Burst Test										
07	Vacuum Test										
08	Bend Test										
09	Swell Test										
10	Adhesion Test										
11	Deformation Test										
12	Salt Spray Test										
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

REMARKS:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-1A

VACUUM BRAKE HOSE LABELING INSPECTION - HOSE

GROUP NO.: _____ ; TEST DATE: _____

TYPE OF ASSY: ___-Veh Specific*; ___-Aftermarket
* Labeling NOT subject to PASS/FAIL criteria.

MARKINGS ON HOSE: DOT Line- _____
Other Line-

HOSE NUMBER	DATE CODE ON HOSE
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
SPARE	

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-1B

VACUUM BRAKE HOSE LABELING INSPECTION - ASSEMBLY

GROUP NO.: _____ ; TEST DATE: _____

AFTERMARKET ASSY: ____-Yes; ____-No

MARKINGS ON BAND:
(Metal band unless otherwise noted)

MARKING OPTION SELECTED: ____-Yes; ____-No
(If YES, see Data Sheet V-1C for PASS/FAIL judgment)

HOSE NO.	DOT MARK	MANUFACTURER'S MARK	PASS, FAIL or N/A
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
SPARE			

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-1C

VACUUM BRAKE HOSE LABELING INSPECTION - END FITTINGS

GROUP NO.: _____ ; TEST DATE: _____

TYPE OF END FITTINGS: ____-Permanent*; ____-Reusable; ____-Renewable*
* NOT subject to Label Inspection PASS/FAIL criteria.

MARKINGS ON END FITTINGS:
(Each end of hose assembly must be marked with an "A" or "B" by the laboratory)

HOSE #	"A" END _____	"B" END _____	P,F,N*
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
SPARE			

* P = PASS, F = FAIL, N/A = NOT APPLICABLE

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-2

VACUUM BRAKE HOSE CONSTRICTION TEST

GROUP NO.: _____; TEST DATE: _____

AMBIENT TEMP.: _____ºF; HOSE NOMINAL I.D.: _____"

PLUG SIZE USED*: _____" (NOTE: _____" Maximum Diameter for _____" I.D. hose)
* Plug size not less than 75% nominal I.D. for heavy duty, or 70% nominal I.D. for light duty

Each end of the hose assembly must be marked with an "A" or "B" by the laboratory.

The constriction of the bore was measured at both ends using the size gage plug indicated above.

HOSE NO.	END	PASS	FAIL	MAX. DRILL SIZE
1	A B	_____	_____	_____
2	A B	_____	_____	_____
3	A B	_____	_____	_____
4	A B	_____	_____	_____
5	A B	_____	_____	_____
6	A B	_____	_____	_____
7	A B	_____	_____	_____
8	A B	_____	_____	_____
9	A B	_____	_____	_____
10	A B	_____	_____	_____
Spare	A B	_____	_____	_____

REMARKS:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-3

VACUUM BRAKE HOSE HIGH TEMPERATURE TEST

GROUP NO.: _____ ; HOSE NOMINAL O.D.: _____ inches

Hose was subjected to vacuum of 26 inches of Hg.

	TIME	**DATE**
START TEMPERATURE CONDITIONING		
END TEMPERATURE CONDITIONING		
TOTAL CONDITIONING TIME (hours) =		

HOSE O.D. (within 5 minutes of conditioning to 257F: _____ inches

After keeping hose at ambient temperature for 5 hours, the hose was bent around a mandrel with a diameter of _____ inches. The hose was inspected.

Inspection _____

Applied water pressure of 175 psi for one minute.

Inspection _____

REMARKS:

PASS	**FAIL**

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-4

VACUUM BRAKE LOW TEMPERATURE RESISTANCE TEST

GROUP NO.: _____ ; HOSE NOMINAL I.D.: _____ inches

The hose assembly and the large test cylinder was conditioned in the cold box in a straight position or natural position at -40ºF for 70 hours.

After the conditioning period and while still at this temperature, the hose assembly was bent around a wood mandrel of the diameter noted in the "REMARKS" section.

All cracks and breaks are noted below.

HOSE #2	DATE	TIME	BOX TEMPERATURE (ºF)	EVIDENCE OF CRACKS OR BREAKS
IN BOX				
OUT BOX				
TOTAL EXPOSURE TIME =				

TEST RESULTS:

PASS	FAIL

Wood Mandrel diameter used = _____ inches

Table IV B Air Brake Hose Diameters and Test Cylinder Radii

Nominal hose inside diameter, inches[1]	3/16	1/4	5/16	3/8	13/32	7/16, 1/2	5/8
Nominal hose inside diameter, millimeters[1]	4, 5	6	8	…	10	12	16
Small test cylinder, radius in inches (millimeters) [2]	1 (25)	1 1/2 (38)	1 3/4 (45)	1 3/4 (45)	1 7/8 (48)	2 (51)	2 1/2 (64)
Large test cylinder, radius in inches (millimeters) [3]	2 (51)	2 1/2 (64)	3 (76)	3 1/2 (89)	3 1/2 (89)	4 (102)	4 1/2 (114)

Notes:
(1) These sizes are listed to provide test cylinder radii for brake hoses manufactured in these sizes. They do not represent conversions.
(2) Small test cylinders are used for the high temperature resistance test.

(3) Large test cylinders are used for the low temperature resistance, ozone resistance, and adhesion of wire-reinforced hose tests.

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-5

VACUUM BRAKE HOSE OZONE TEST - 70 HOURS

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

HOSE NO.: __3__ ; HOSE NOMINAL O.D.: _____ inches

CYLINDER DIAMETER = 8 x HOSE NOMINAL O.D. = _____ inches

	TIME	DATE
START OF TEST		
END OF TEST		
TOTAL EXPOSURE TIME (hours) =		

The brake hose was bound around a cylinder with a diameter of _____ inches and conditioned at room temperature for 24 hours.

The brake hose and cylinder were then exposed to an ozone concentration of 50 parts per 100 million by volume for 70 hours at a temperature of 98 to 104ºF.

Examination of the hose under 7-power magnification yielded the following results -

TEST RESULTS:

PASS	FAIL

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-6

VACUUM BRAKE HOSE BURST STRENGTH TEST

GROUP NO.: _____ ; TEST DATE: _____

AMBIENT TEMPERATURE: _____ ºF.

The hose was connected to the pressure source and completely filled with water.

After all air was eliminated in the hose, the relief valve was closed and pressure applied at the rate of 800 to 1,000 psi per minute until the specimen burst or reached 350 psi minimum.

HOSE NUMBER	ACTUAL PRESSURE ATTAINED, psig	MINIMUM ALLOWABLE BURST STRENGTH	PASS	FAIL
4		350 psig		

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-7

VACUUM BRAKE HOSE VACUUM TEST

GROUP NO.: _____ ; TEST DATE: _____

AMBIENT TEMPERATURE: _____ ºF.

The Outside Diameter (O.D.) of Hose #5 was measured and the hose was subjected to an internal vacuum of 25 to 26 inches of mercury for 5 minutes and the O.D. re-measured while the hose was still under vacuum. The O.D. shall not contract in excess of 1/16 inches.

Vacuum = _____ inches of Hg.

	PRETEST O.D. (in.)	AT VACUUM O.D. (in.)	CHANGE (in.)	ALLOWABLE (in.)	PASS	FAIL
Hose #5						

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-8

VACUUM BRAKE HOSE BEND TEST

GROUP NO.: _____ ; TEST DATE: _____

AMBIENT TEMP.: _____ ºF. NOMINAL HOSE ID: _____ inches

Hose #6 was cut to the length below and bent in its direction of normal curvature until the ends touched. The hose Outside Diameter (O.D.) was measured before and after bending. The allowable differences in diameters (collapse) are shown in Table 3 of the TP.

Hose Length = _____ inches

	O.D. PRIOR TO BEND (in.)	O.D. AT BEND (in.)	CHANGE (in.)	ALLOWABLE (in.)	PASS	FAIL
Hose #6						

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-9

VACUUM BRAKE HOSE SWELL TEST

GROUP NO.: _____ ; AMBIENT TEMP.: _____ ºF

HOSE TYPE: _____-VL; _____-VH; HOSE NOMINAL I.D.: _____ inches

Hose #7 was cut into a 12-inch length and filled with Reference Fuel A in accordance with ASTM D471-64. The hose was maintained at ambient temperature and pressurized for 48 hours.

	TIME	**DATE**
START OF TEST		
END OF TEST		
TOTAL TEST TIME (hours) =		

The **CONSTRICTION TEST** was performed in accordance with TP Paragraph 12.C.6.

HOSE NO.	**HOSE END**	**PASS**	**FAIL**
7	A		
	B		

The **VACUUM TEST** was performed in accordance with TP Paragraph 12.C.8.

Vacuum = _____ inches of mercury (Hg)

TEST RESULTS:

PASS	**FAIL**

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-10

VACUUM BRAKE HOSE ADHESION TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

TEST DATE: _____ ; SAMPLE LENGTH: _____ inches

Hose #8 was prepared in accordance with the TP Paragraph 12.B.2 and installed in the Adhesion Test Device. The moving head travel was 1.0 in./minute with a permanent recording of tension vs. displacement.

Minimum Force Recorded (lbs.)	Adhesion Value (lbs./in.)	Minimum Allowable (lbs./in.)	PASS	FAIL
		8		

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-11

VACUUM BRAKE HOSE DEFORMATION TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

TEST DATE: _____ ; HOSE NOMINAL I.D.: _____ inches

HOSE TYPE: _____-VL; _____-VH

Hose #9 was positioned longitudinally in the compression device with the fabric laps not in the line of the applied force and a gradually increasing force was applied to the test specimen to compress its Inside Diameter (I.D.) to the dimension "D" for the size of the hose tested. After 5 seconds the force was released and the peak load recorded. The procedure was repeated 4 times permitting a 10-second recovery period between load applications.

FORCE APPLICATION		FORCE (lbs.)
1	less than 70 lbs for HD hose	
	less than 50 lbs for LD hose	
2		
3		
4		
5	more than 40 lbs for HD hose	
	more than 20 lbs for LD hose	

Hose Original O.D. = _____ inches

Compression Dimension (D) = _____ inches (from Table 4 of Paragraph 12.C.11)

Post Load O.D. = _____ inches

% of Original O.D. = _____ % (Allowable = 90%; Wire Reinforced Allowable = 85%)

PASS	FAIL

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-12

VACUUM BRAKE HOSE SALT SPRAY TEST - 24 HOURS

GROUP NO.: _____

The hose assembly was subjected to a Salt Spray test for 24 hours in accordance with the testing method of Salt Spray (Fog) Testing ASTM B117-64.

The temperature in the salt chamber was continuously recorded.

HOSE #14	DATE	TIME	SALT SOLUTION PROP.		EVIDENCE OF RUST OR CORROSION
			Sp.Gr.@95±2ºF	Ph	
IN Cabinet					
OUT Cabinet					

TEST RESULTS:

PASS	FAIL

REMARKS: (Note all interruptions in test, cause, and length of time)

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET V-13

VACUUM BRAKE HOSE TRACER CORD COLOR IDENTIFICATION TEST

GROUP NO.: _____ ; TEST DATE: _____

After completion of all tests, remove a portion of the hose outer cover in all NONFAILING samples to determine the color of the tracer cord woven into the outer braid; tracer cord may be woven into inner braid on some hose assemblies.

SPECIMEN NO.	CORD COLOR	R.M.A. IDENTIFICATION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-1A

AIR BRAKE TUBING LABELING INSPECTION - HOSE

GROUP NO.: _____ ; TEST DATE: _____

TYPE ASSY: ____-Veh Specific*; ____-Aftermarket
* These types of assys are NOT subject to Label Inspection PASS/FAIL criteria.

MARKINGS ON TUBING: DOT Line-
_____
Other Line-

SAMPLE NUMBER	DATE CODE ON TUBING
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
.	
.	
23	
SPARE	

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-1B

AIR BRAKE TUBING LABELING INSPECTION - ASSEMBLY

GROUP NO.: _____; AFTERMARKET ASSY: __-Yes/__-No; TEST DATE: _____

MARKINGS ON BAND:
(Metal band unless otherwise noted)

MARKING OPTION SELECTED: ____-Yes; ____-No
(If YES, see Data Sheet A-1C for PASS/FAIL judgment)

SAMPLE NO.	DOT MARK	MANUFACTURER'S MARK	PASS, FAIL or N/A
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
.			
.			
23			

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-1C

AIR BRAKE TUBING LABELING INSPECTION - END FITTINGS

GROUP NO.: _____ ; TEST DATE: _____

TYPE OF END FITTINGS: ____Permanent*; ____Reusable
* NOT subject to Label Inspection PASS/FAIL criteria.

MARKINGS ON END FITTINGS:
(Each tubing assy end must be marked with an "A" or "B" by the lab)

SAMPLE#	"A" END	"B" END	P,F,N*
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
.			
.			
23			
SPARE			

- P = PASS, F = FAIL, N = NOT APPLICABLE

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-2

AIR BRAKE TUBING CONSTRICTION TEST

TEST DATE: _____; TUBING O.D.: _____"

AMB.TEMP.: ___ºF; PLUG SIZE USED*: _____" (NOTE: _____" Max Dia. for _____" ID hose)
* See TP Paragraph 12.B.2 for proper plug size

Each end of the tubing assembly must be marked with an "A" or "B" by the lab. The constriction of the bore was measured at both ends using the size gage plug as shown above.

SAMPLE NO.	END	PASS	FAIL	MAX. DRILL SIZE
1	A B	_____	_____	_____
2	A B	_____	_____	_____
3	A B	_____	_____	_____
4	A B	_____	_____	_____
5	A B	_____	_____	_____
6	A B	_____	_____	_____
7	A B	_____	_____	_____
8	A B	_____	_____	_____
9	A B	_____	_____	_____
10	A B	_____	_____	_____
11	A B	_____	_____	_____
.	A B	_____	_____	_____
.	A B	_____	_____	_____
23	A B	_____	_____	_____
SPARE	A B	_____	_____	_____

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-3

AIR BRAKE TUBING HIGH TEMPERATURE CONDITIONING AND DIMENSIONAL STABILITY TEST

GROUP NO.: _____ AMBIENT TEMPERATURE: _____ºF

TUBING O.D (OD) _____ inches

TUBING INSIDE DIAMETER (ID) _____ inches

TUBING THICKNESS _____ inches

Conditioned the tubing at 230 F for 4 hours.

230 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Allowed to cool at room temperature for 30 minutes and measured the dimensions.

TUBING O.D (OD) _____ inches

TUBING INSIDE DIAMETER (ID) _____ inches

TUBING THICKNESS _____ inches

REMARKS:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-4

AIR BRAKE TUBING BOILING WATER CONDITIONING AND DIMENSIONAL STABILITY TEST

GROUP NO.: _____ AMBIENT TEMPERATURE: _____ºF

TUBING O.D (OD) _____ inches

TUBING INSIDE DIAMETER (ID) _____ inches

TUBING THICKNESS _____ inches

Conditioned the tubing in water at 212 F for 2 hours.

WATER @ 212 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Allowed to cool at room temperature for 30 minutes and measured the dimensions.

TUBING O.D (OD) _____ inches

TUBING INSIDE DIAMETER (ID) _____ inches

TUBING THICKNESS _____ inches

REMARKS:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-5

AIR BRAKE TUBING BURST STRENGTH TEST

GROUP NO.: _____ ; HOSE TYPE: _____ ; TEST DATE: _____

AMBIENT TEMPERATURE: _____ ºF

ACTUAL PRESSURE ATTAINED, psig	PASS	FAIL

REMARKS:

RECORDED BY: _____ DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-6

AIR BRAKE TUBING MOISTURE ABSORPTION AND BURST TEST

GROUP NO.: _____ AMBIENT TEMPERATURE: _____ºF

TUBING O.D (OD) _____ inches

Conditioned the tubing at 230 F for 24 hours.

230 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Within 30 seconds after conditioning weighed the sample.

INTIAL WEIGHT: _____ grams

Placed the sample in an environmental chamber at 75 F and 100% relative humidity for 100 hours.

75 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Within 5 minutes after conditioning weighed the sample.

CONDITIONED WEIGHT: _____ grams

Calculated percentage of moisture absorption.

Moisture Absorption = 100(Conditioned Weight – Initial Weight)/Initial Weight = _____%

Installed the end fittings and conducted the burst test.

	REQUIREMENT FROM TABLE BELOW	ACTUAL PRESSURE ATTAINED, psig	PASS	FAIL
80% Burst Pressure				

:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-7

AIR BRAKE TUBING ULTRAVIOLET LIGHT RESISTANCE TEST

GROUP NO.: _____ AMBIENT TEMPERATURE: _____ºF

TUBING O.D (OD) _____ inches

The sample was exposed to an irradiance level of 0.85 watts per square meter at 340 nm for 300 hours, while keeping the temperature in the chamber at 113 F at ambient humidity.

113 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

The sample was placed inside the impact test apparatus and drop the impacter into the tubing from a height of 12 inches.

Installed the end fittings and conducted the burst test.

	REQUIREMENT FROM TABLE BELOW	ACTUAL PRESSURE ATTAINED, psig	PASS	FAIL
80% Burst Pressure				

:

:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-8

AIR BRAKE TUBING LOW TEMPERATURE FLEXIBILITY TEST

GROUP NO.: _____ AMBIENT TEMPERATURE: _____ºF

TUBING O.D (OD) _____ inches

Conditioned the tubing at 230 F for 24 hours.

230 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Allowed to cool at ambient for 30 minutes.

Placed the sample and the cylinder in an environmental chamber at -40 F for 4 hours.

-40 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Bent the sample around the cylinder while at –40 F.

PASS	FAIL

REMARKS:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-9

AIR BRAKE TUBING HIGH TEMPERATURE FLEXIBILITY TEST

GROUP NO.: _____ AMBIENT TEMPERATURE: _____ºF

TUBING O.D (OD) _____ inches

CYLINDER RADIUS _____ inches

Bent the sample 180 degrees around the cylinder and held it in place.

Conditioned the tubing and the cylinder in an oven at 230 F for 72 hours.

230 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Allowed to cool at ambient for 30 minutes.

Removed the clamps and straighten the tubing.

Rebent the sample 180 degrees around the cylinder (same point but opposite direction).

Conducted the burst test.

	REQUIREMENT FROM TABLE BELOW	ACTUAL PRESSURE ATTAINED, psig	PASS	FAIL
80% Burst Pressure				

:

:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-10

AIR BRAKE TUBING HIGH TEMPERATURE RESISTANCE TEST

GROUP NO.: _____ AMBIENT TEMPERATURE: _____ºF

TUBING O.D (OD) _____ inches

Conditioned the tubing at 230 F for 72 hours.

230 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Allowed to cool at room temperature for 30 minutes and conducted the burst test.

	REQUIREMENT FROM TABLE BELOW	ACTUAL PRESSURE ATTAINED, psig	PASS	FAIL
80% Burst Pressure				

REMARKS:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-11

AIR BRAKE TUBING HIGH TEMPERATURE CONDITIONING, LOW TEMPERATURE IMPACT RESISTANCE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ºF

TUBING O.D.: _____ inches FREE LENGTH: _____inches

230 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Conditioned the tubing in an air oven at 230 F for 72 hours.

-40 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Conditioned the tubing and the impact test at apparatus in an environmental chamber at –40 F for 4 hours.

After dropping the impacter remove the tubing from the chamber and allow to warm for 1 hour at ambient temperature.

AMBIENT TEMPERATURE	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Plot Pressure (psig) vs. time (minutes)

	REQUIREMENT FROM TABLE BELOW	ACTUAL PRESSURE ATTAINED, psig	PASS	FAIL
80% Burst Pressure				

REMARKS:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-12

AIR BRAKE TUBING BOILING WATER CONDITIONING, LOW TEMPERATURE IMPACT RESISTANCE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ºF

TUBING O.D.: _____ inches FREE LENGTH: _____inches

WATER @ 212 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Condition the tubing and the impact test at apparatus in an environmental chamber at –40 F for 4 hours.

-40 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

After dropping the impacter remove the tubing from the chamber and allow to warm for 1 hour at ambient temperature.

AMBIENT TEMPERATURE	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Plot Pressure (psig) vs. time (minutes)

	REQUIREMENT FROM TABLE BELOW	ACTUAL PRESSURE ATTAINED, psig	PASS	FAIL
80% Burst Pressure				

REMARKS:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-13

AIR BRAKE TUBING ZINC CHLORIDE RESISTANCE TEST

GROUP NO.: _____ AMBIENT TEMPERATURE: _____ ºF

TUBING NOMINAL O.D. _____ inches

	TIME	DATE
START OF IMMERSION TIME		
END OF IMMERSION TIME		
TOTAL IMMERSION TIME (hours) =		

The brake hose was bound around a cylinder having radius equal to the unsupported bend radius in Table VIII of S106.

CYLINDER RADIUS _____ inches

The tubing and cylinder were then exposed to a 50 percent zinc chloride aqueous solution at room temperature for 200 hours.

The hose was removed from the solution and examined under 7-power magnification.

Examination of the hose under 7-power magnification yielded the following results -

TEST RESULTS:

PASS	FAIL

REMARKS:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-14

AIR BRAKE TUBING METHYL ALCOHOL RESISTANCE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

HOSE NO.: ____ ; TUBING NOMINAL O.D.: _____ inches

CYLINDER RADIUS: _____ inches

	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		
TOTAL EXPOSURE TIME (hours) =		

The tubing and cylinder were then exposed to an aqueous solution of 95% methyl alcohol.

Examination of the hose under 7 power magnification yielded the following results.

TEST RESULTS:

PASS	FAIL

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-15

AIR BRAKE TUBING HIGH TEMPERATURE CONDITIONING AND COLLAPSE RESISTANCE TEST

GROUP NO.: _____ AMBIENT TEMPERATURE: _____ºF

TUBING O.D (OD)	
UNSUPORTED BEND RADIUS (UBR)	
DISTANCE BETWEEN PINS (DP)	
TUBING LENGTH (TL)	
Note: PC=2(BR)+OD TL= 3.14(BR) + 10(OD) + 2	

After placing a permanent mark at the center of the sample, record the initial OD.

INITIAL OD _____ inches

Install the tubing over the pins of the holding device and condition the device with the tubing at 200 F for 24 hours.

200 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

After exposure measure and record the final OD.

FINAL OD _____ inches

Calculate Percent Collapse.

%Collapse = 100(Initial OD – Final OD)/Initial OD

%Collapse: _____

REMARKS:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-16

AIR BRAKE TUBING OZONE RESISTANCE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

HOSE NO.: __15__ ; HOSE NOMINAL O.D.: _____ inches

CYLINDER DIAMETER = 8 x HOSE NOMINAL O.D. = _____ inches

	TIME	**DATE**
START OF TEST		
END OF TEST		
TOTAL EXPOSURE TIME (hours) =		

The brake hose was bound around a cylinder with a diameter of _____ inches and conditioned at room temperature for 24 hours.

The brake hose and cylinder were then exposed to an ozone concentration of 100 parts per 100 million by volume for 70 hours at a temperature of 104ºF.

Examination of the hose under 7-power magnification yielded the following results -

TEST RESULTS:

PASS	**FAIL**

REMARKS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-17

AIR BRAKE TUBING OIL RESISTANCE TEST

GROUP NO.: _____ ; HOSE TYPE: _____ ; TEST DATE: _____

AMBIENT TEMPERATURE: _____ ºF

The sample was immersed in ASTM IRM 903 oil at 212 F for 70 hours.

ASTM IRM 903 OIL @ 212 F	TIME	DATE
START OF TEST		
END OF TEST		
TOTAL EXPOSURE TIME (hours) =		

The sample was removed and allowed to cool at ambient temperature for 30 minutes. The burst test was conducted.

	REQUIREMENT FROM TABLE BELOW	ACTUAL PRESSURE ATTAINED, psig	PASS	FAIL
80% Burst Pressure				

REMARKS:

RECORDED BY: _____ DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-18

AIR BRAKE TUBING TENSILE TEST

GROUP NO._____; TEST DATE: _____ ; AMBIENT TEMP.: _____ ºF

The sample was mounted in the tensile machine so that the hose and end fittings had a straight centerline corresponding to the direction of the machine pull.

The sample was pulled at a rate of 1 inch/minute until failing as follows:

A. Hose pulled out of the end fitting
B. Hose ruptured

TABLE H6-1 - Slow Pull Test (1" per minute)

HOSE NO.	ACTUAL TOTAL LOAD AT TIME OF FAILURE (lbs)	TYPE OF FAILURE "A" or "B"	MIN. ALLOW. TENSILE STRENGTH (lbs)	PASS	FAIL
9A			325		
10A			325		
11A			325		
12A			325		

TABLE H6-1 - Fast Pull Test (2" per minute)

HOSE NO.	ACTUAL TOTAL LOAD AT TIME OF FAILURE (lbs)	TYPE OF FAILURE "A" or "B"	MIN. ALLOW. TENSILE STRENGTH (lbs)	PASS	FAIL
9B			370		
10B			370		
11B			370		
12B			370		

REMARKS:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-19

AIR BRAKE TUBING BOILING WATER CONDITIONING AND TENSILE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ºF

TUBING O.D.: _____ inches FREE LENGTH: _____inches

WATER @ 212 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

The hose assemblies were mounted in the tensile machine so that the hose and end fittings had a straight centerline corresponding to the direction of the machine pull.
Record when either the required load or a free length of 9” is achieved.

Tensile Test (1" per minute)

ACTUAL LOAD (lbs)	REQUIRED LOAD	PASS	FAIL
OR			
ACTUAL FREE LENGTH	**REQUIRED FREE LENGTH**		
	9”		

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-20

AIR BRAKE TUBING THERMAL CONDITIONING AND TENSILE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF
TUBING O.D.: _____ inches

-40 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		
AMBIENT TEMPERATURE		
START OF EXPOSURE		
END OF EXPOSURE		
WATER @ 212 F		
START OF EXPOSURE		
END OF EXPOSURE		
AMBIENT TEMPERATURE		
START OF EXPOSURE		
END OF EXPOSURE		

The hose assemblies were mounted in the tensile machine so that the hose and end fittings had a straight centerline corresponding to the direction of the machine pull.
Record when either the required load or a free length of 9” is achieved.

Tensile Test (1" per minute)

ACTUAL LOAD (lbs)	REQUIRED LOAD	PASS	FAIL
OR			
ACTUAL FREE LENGTH	**REQUIRED FREE LENGTH**		
	9”		

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-21
AIR BRAKE TUBING VIBRATION RESISTANCE TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ ºF

FREE LENGTH: _____

INITIAL TIGHTENING TORQUE: _____

Plot:

Up to 1,000,000 cycles

Chamber Temperature vs. Cycles (up to 1,000,000 cycles)
Camber Temperature vs. Time (up to one hour after 1,000,000 cycles)

For the last 100 cycles

Flow rate (cm^3/min) vs. cycles

After 1,000,000 cycles

Flow rate (cm^3/min) vs. time
Temperature vs. time

One hour after reaching 1,000,000 cycles – 20% Initial Tightening Torque: _____

TEST RESULTS:

PASS	FAIL

REMARKS:

RECORDED BY: _____ ; DATE:

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-22

AIR BRAKE TUBING END FITTING RETENTION TEST

GROUP NO.: _____ ; TEST DATE: _____ AMBIENT TEMPERATURE: _____ ºF

Plot Pressure (psig) vs. time (minutes)

	REQUIREMENT FROM TABLE BELOW	ACTUAL PRESSURE ATTAINED, psig	PASS	FAIL
50% Burst Pressure				
Burst Pressure				

REMARKS:

RECORDED BY: _____ DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-23

AIR BRAKE TUBING THERMAL CONDITIONING AND END FITTING RETENTION TEST

GROUP NO.: _____ ; AMBIENT TEMPERATURE: _____ºF

TUBING O.D.: _____ inches

Fill the sample with ASTM IRM 903 oil, connect to a source of hydraulic pressure. Insert in an environmental chamber apply atmospheric pressure. Set the temperature in the chamber to 200 F. Condition the tubing for 24 hours.

200 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Increase the pressure at a rate of 3000 psi/min to 450 psi and hold for 5 minutes. Decrease the pressure to atmospheric and condition the tubing the environmental chamber at 75 F for 1 hours.

75 F	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Condition the sample in the environmental chamber at -40 F for 24 hours.

AMBIENT TEMPERATURE	TIME	DATE
START OF EXPOSURE		
END OF EXPOSURE		

Increase the pressure at a rate of 3000 psi/min to 450 psi and hold for 5 minutes.

Plot Pressure (psig) vs. time (minutes)

REMARKS:

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-24

AIR BRAKE TUBING END FITTING SERVICEABILITY TEST

GROUP NO.: _____ ; TEST DATE: _____ AMBIENT TEMPERATURE:_____ ºF

After assembly/disassembly sequence, pressurize the test item to 120 psig and hold for 20 seconds.

Plot Pressure (psig) vs. time (seconds)

Flow rate (cm^3/min) vs. time

TEST RESULTS:

Leakage Present: NO ____ Yes _____ Leakage rate: _____

PASS	FAIL

REMARKS:

RECORDED BY: _____ DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET P-25

AIR BRAKE TUBING END FITTING CORROSION TEST

GROUP NO.: _____

The sample was subjected to a Salt Spray test for 24 hours in accordance with the testing method of Salt Spray (Fog) Testing ASTM B117-03.

The temperature in the salt chamber and the air supply (psig) were continuously recorded.

HOSE #14	DATE	TIME	SALT SOLUTION PROP.		EVIDENCE OF RUST OR CORROSION
			Sp.Gr.@95±2ºF	Ph	
IN Cabinet					
OUT Cabinet					

TEST RESULTS:

PASS	FAIL

REMARKS: (Note all interruptions in test, cause, and length of time)

RECORDED BY: _____ ; DATE: _____
APPROVED BY: _____

16. FORMS

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS 106 TEST DATE: _____

LABORATORY: _____

CONTRACT NO.: _____; DELV. ORDER NO.: _____

LABORATORY PROJECT ENGINEER'S NAME: _____

TEST SPECIMEN DESCRIPTION - -

MANUFACTURER: _____

MODEL: _____

_____

PART NO.: _____

TEST FAILURE DESCRIPTION: _____

_____

_____

FMVSS REQUIREMENT, PARAGRAPH §____ : _____

_____

_____

_____

NOTIFICATION TO NHTSA (COTR): _____

DATE: _____ BY: _____

REMARKS

16. FORMS....Continued

MONTHLY INVENTORY STATUS REPORT

FMVSS 106

DATE OF REPORT:

GROUP NO.	MANUFACTURER'S NAME	MODEL	NUMBER OF SPECIMENS RECEIVED	CONDITION OF SAMPLE	DATE RECEIVED
001					
002					
003					
004					
005					
006					
007					
008					
009					
010					
011					
012					
013					
014					
015					
016					
017					
018					
019					
020					

REMARKS:

16. FORMS....Continued

MONTHLY TEST STATUS REPORT

FMVSS 106

DATE OF REPORT:

GROUP NO.	VEHICLE MANUFACTURER AND MODEL	TEST START DATE	TEST COMPLETE DATE	PASS / FAIL	DATE FINAL REPORT SUBMITTED
001					
002					
003					
004					
005					
006					
007					
008					
009					
010					
011					
012					
013					
014					
015					
016					
017					
018					
019					
020					

REMARKS: